

EDMONTON WORKS

**Western Canada's
Great New
Oil Refinery**





Edmonton

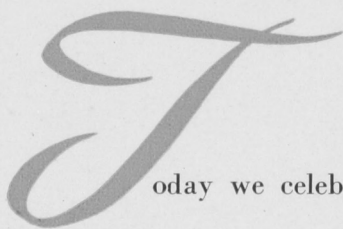
— BRIGHT STAR IN THE WEST

Pace-setter in the rapidly advancing West is Edmonton. Tremendous changes, largely set off and sustained by Alberta oil, are taking place throughout Western Canada as this great area begins to emerge as a new industrial empire. In Edmonton the rate of change and significant development are strikingly apparent.

A great oil refining industry is already established here. In the wake of the refineries have come chemical industries; others are following. Yearly the industrial West becomes a more significant factor, and as its importance grows, so grows the importance of Edmonton.

We salute this vital city, capital of Alberta, and bright star of the new West.

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oday we celebrate the opening of our new Refinery, the Edmonton Works. Our Company is proud thus to be taking part in the industrial expansion of Western Canada.

Confidence built this great Refinery—your confidence in the high quality of our products, our confidence in the growth and vitality of the West.

An important factor in making possible this major advance is the loyalty and constant support of the Company's employees—whether employed in the search for oil, the manufacture of petroleum products or in making these products conveniently available to the public.

To all our many friends who through the years have given us their loyal support—our sincere thanks!

T. C. Twyman, *President*

McCOLL-FRONTENAC OIL COMPANY LIMITED

June 11, 1952



"Round-the-Clock" production. Night Photograph of Edmonton Works.

Edmonton Works

—A GREAT STEP FORWARD

McColl-Frontenac's Edmonton Works covers an area of approximately 160 acres and has a daily crude oil capacity of 5,500 barrels. This multi-million dollar refinery is a major producer of high quality motor gasolines and other petroleum products, such as stove oil, Diesel fuel oil, and heating oils. It is also equipped for the specialized manufacture of heavy fuel oil and petroleum coke for industrial use. Its output is distributed throughout Western Canada. The normal operating staff of Edmonton Works consists of about 150 employees of all classifications.

The largest fluid catalytic cracking unit in Alberta is in operation in the refinery. In addition to the towering "Cat Cracker" the refinery includes equipment for desalting crude oil, crude distillation, coking, catalytic polymerization, and product treating.

Originally designed to process crude oils from the Leduc and

Redwater fields, McColl-Frontenac's new Edmonton Refinery is now being supplied by crude oil from the Wizard Lake area, discovered and developed by the Texaco Exploration Company. McColl-Frontenac has a 10% interest in this development, which was rated as a major crude oil discovery in Alberta in 1951.

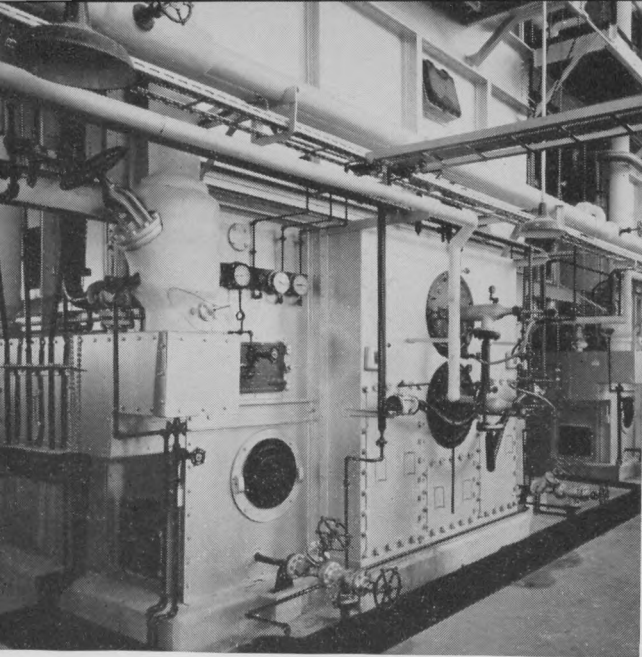


Central Control Room. Here the Refinery's operations are observed and controlled.

The new refinery's fluid catalytic cracking unit, or "Cat Cracker", is the most advanced and efficient petroleum cracking equipment since it produces greater yields of high octane gasoline per barrel of crude oil than other processes. McColl-Frontenac's "Cat Cracker" is charged with the gas oils produced on the crude stilling and coking units at the rate of 2,640 barrels per day. The principal equipment items on the "Cat Cracker" are the reactor and regenerator. The combined weight of these two steel vessels is 266,000 pounds. Gas oil is cracked in the reactor in the presence of catalyst, which is a synthetic fluidized clay. Carbon deposited on the clay

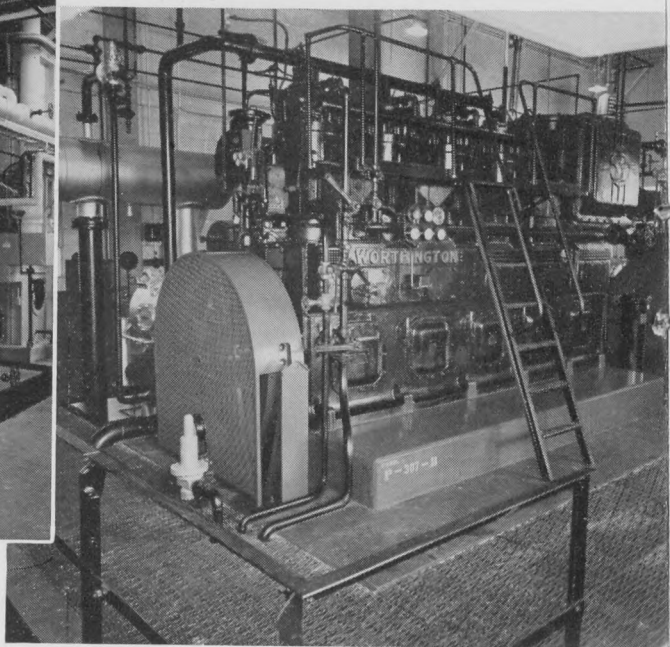
Aerial view of Edmonton Works.





Partial view of the Boiler Room shows some of the up-to-date equipment.

Mighty gas compressors play a major role in Refinery's operation.



in the reactor, as a result of the cracking, is burned off in the regenerator, producing the heat necessary for the operation. Carbon thus burned off is equivalent to 45 tons per day of the highest quality coal. The tremendous amount of heat liberated in the regenerator is transferred to the reactor by the flowing, or fluid, catalyst.

Additional high quality gasoline is produced from the catalytic polymerization unit, referred to as the "Cat Poly Unit", where light gases resulting from the cracking of heavy oils are chemically combined, or polymerized, to yield exceptionally high octane motor fuel.

The coking unit processes reduced crude from the distillation unit to yield gas, cracked gasoline, heavy gas oil and petroleum coke. Heavy gas oil is charged to the "Cat Cracker" as described above. Daily production of petroleum coke is about 60 tons.

At night, particularly, probably the most outstanding feature of the refinery is the 175 foot flare tower at the top of which a small gas flame burns continually while the plant is in operation. The gas burnt at the flare is taken from the refinery gas system. In case of an operational upset in the refinery any excess gas produced flows to the flare and is burned.

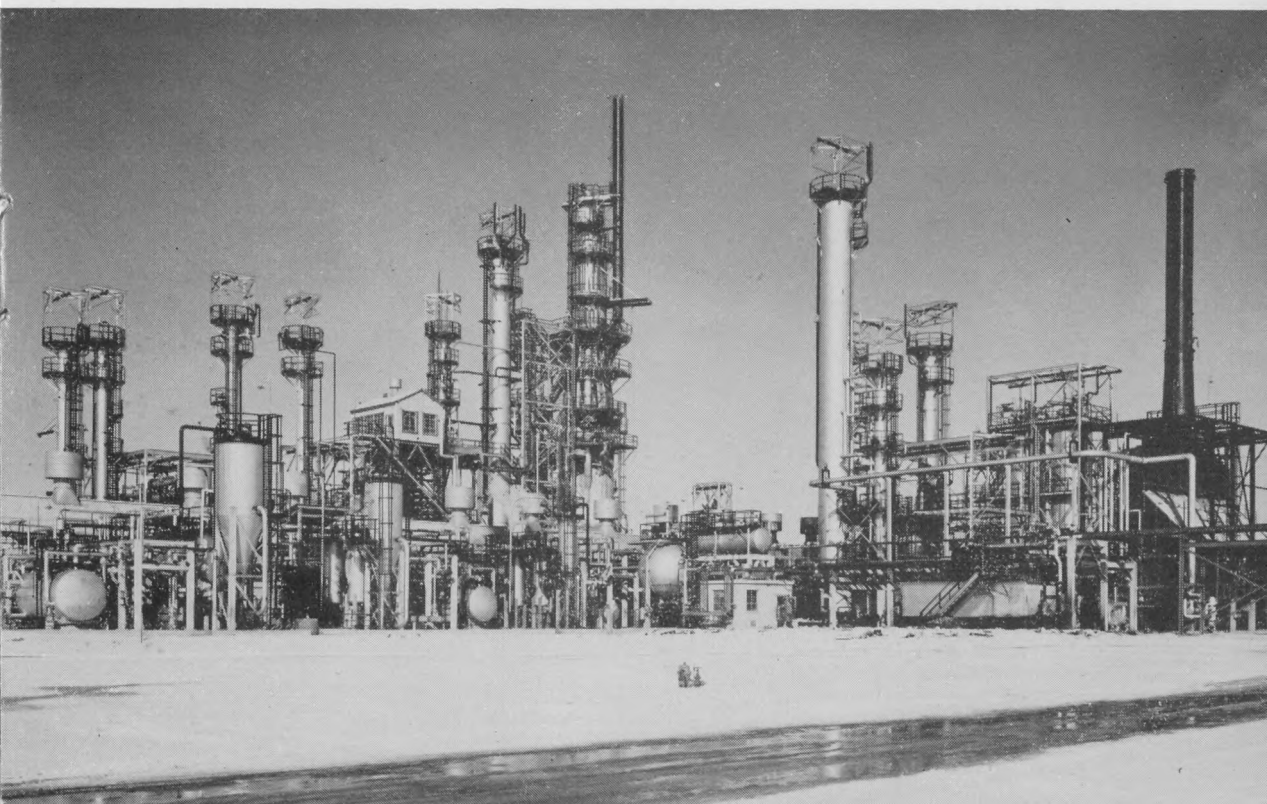
Included in the refinery is equipment for the chemical treating of gasoline, stove oil, and kerosene. Obnoxious and deleterious sub-

stances are present in all gasolines and light fuels as they are produced from the operating units. These unwanted substances are rendered harmless or removed by the treating and sweetening process. A catalytic sweetening process is employed which is the third catalytic operation in the Refinery, the other two being "cat cracking" and catalytic polymerization referred to above.

Edmonton Works is provided with a railway tank car loading rack which accommodates 22 cars at one time. Gasoline can be loaded at all positions on both sides of the rack and other fluid products at a sufficient number of spots to take care of required shipments. The coke produced in the continuous coking operation is loaded into hopper gondola cars by use of a conveyor system adjacent to the coke drums. Truck loading facilities, sufficient to handle all tank truck requirements, are under construction. Modern barrel filling and handling equipment is also being installed to handle shipments in barrels.

The utmost attention has been given to our employees' comfort and safety in the provision of showers, lockers, and a well equipped first-aid room with a trained attendant. The refinery has its own portable fire fighting equipment designed particularly for fighting oil fires. Supplementing this is a hydrant system throughout the property, foam generators, fire extinguishers and similar emergency equipment.

An interesting skyline—Fractionating Towers and "Cat Cracker" close-up.



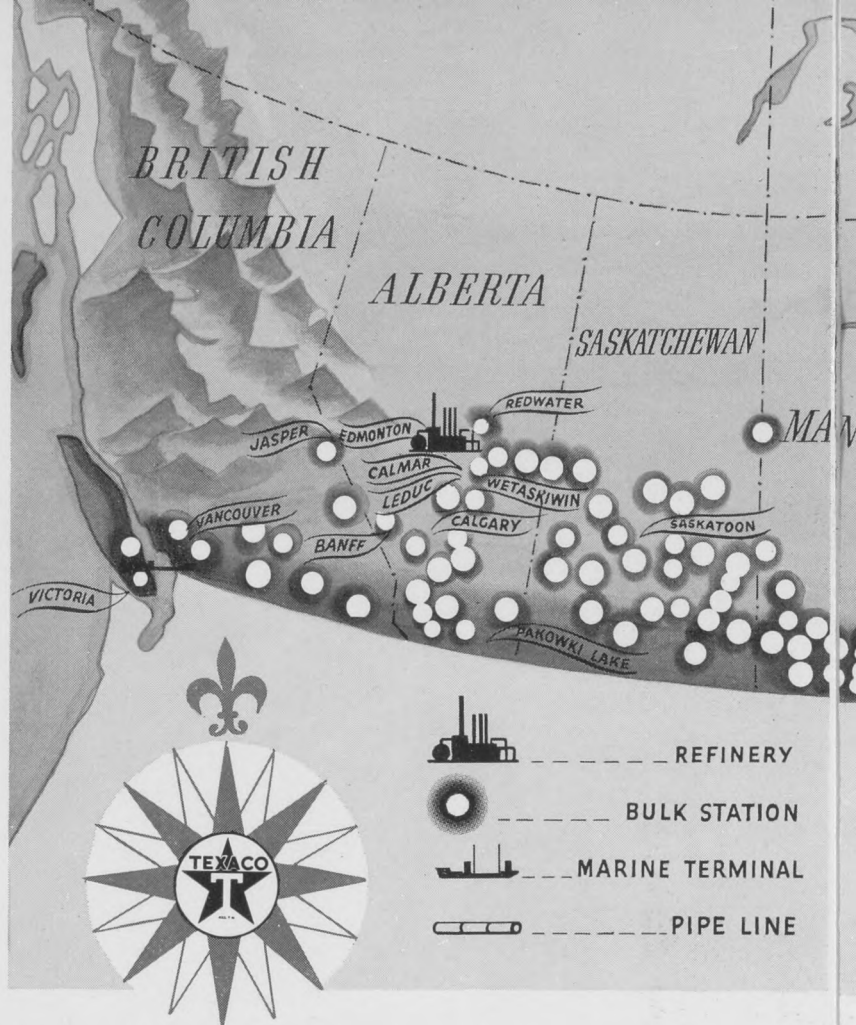
FURTHER FACTS OF INTEREST:—

Some idea of the magnitude of the job of building a complete modern refinery may be gathered from the following facts. The fabricated steel used in the construction of Edmonton Works amounted to 8,100 tons, the quantity of concrete was 8,000 cubic yards. Seven hundred men were employed at one time during the construction program. There are 163 miles of process and transfer piping ranging from one quarter inch to sixteen inch in size and requiring approximately 12,900 valves in corresponding sizes. Four thousand drawings were prepared for the process equipment. The storage tank capacity is approximately 27,125,000 gallons. The water reservoir has a capacity of 2,250,000 gallons. Steam requirements for the refinery are provided by three boilers, each of which has a rated capacity of 35,000 pounds steam per hour at 250 pounds per square inch. Electric power is purchased, three 250 KVA transformers being required in the refinery to handle the load and reduce the 23,000 volt transmission line power to 2,300 volt power for distribution throughout the refinery. Cooling water is pumped from the North Saskatchewan River. The process equipment requires circulated water at the rate of 5,500 gallons per minute. Sixty-two pumps and compressors were installed to handle the liquids and gases on the process equipment. No less than 700 instruments of all types were provided to record and indicate the process variables.

A group of Fractionating Towers indicates the complex structure of Western Canada's great new oil Refinery. ►



Serving the Great Canadian Market

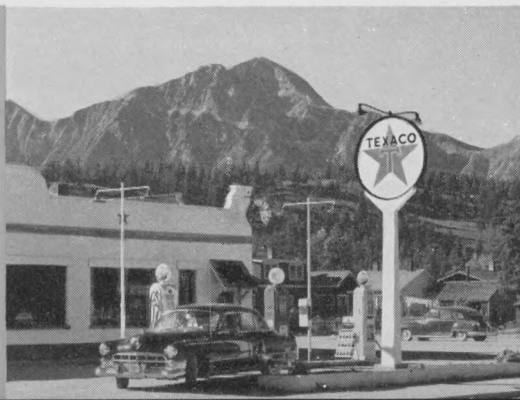
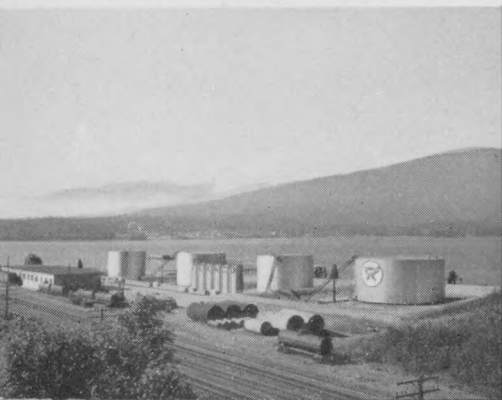


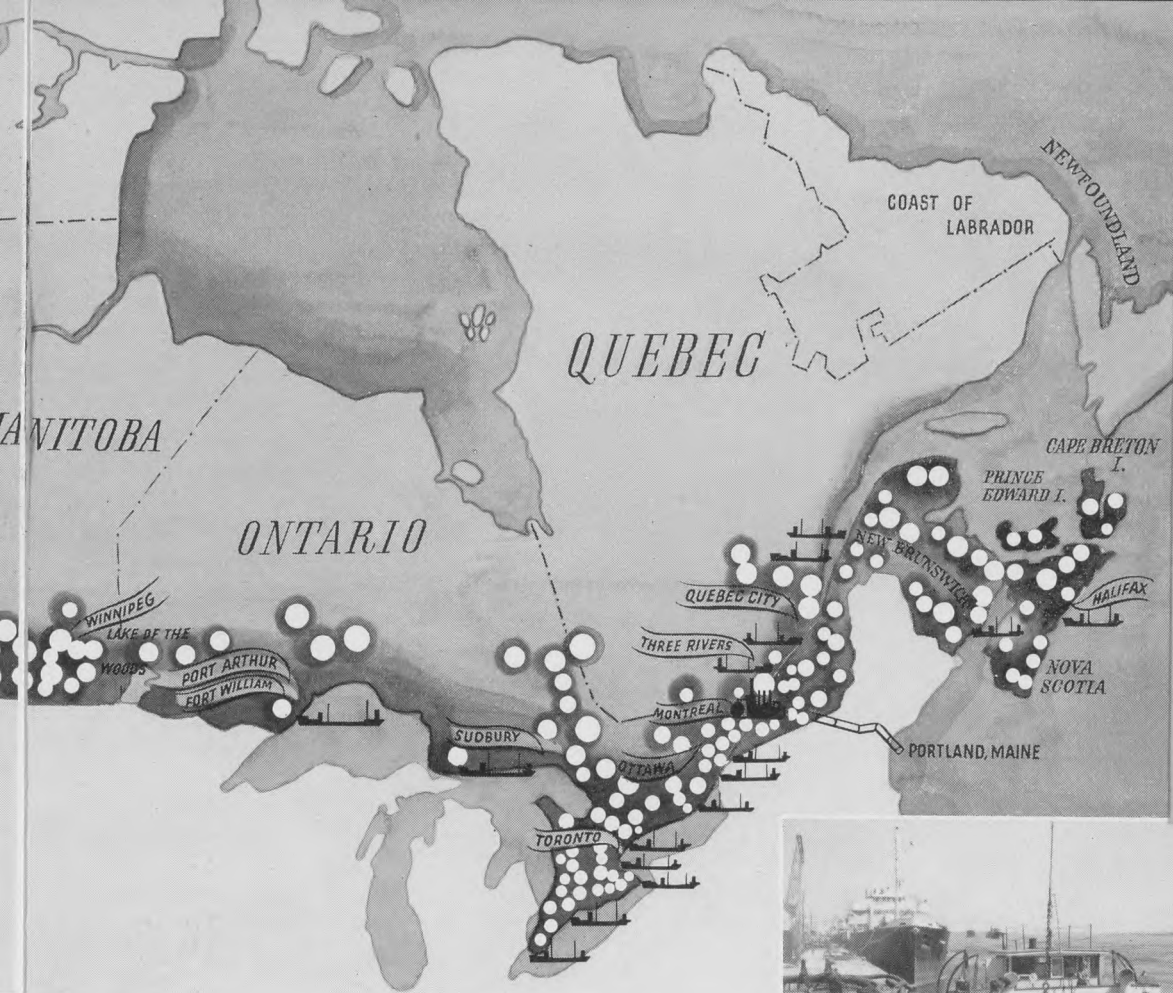
With the opening of Edmonton Works, McColl-Frontenac now operates two ultra-modern Refineries; the other, at Montreal, having a capacity of 43,000 barrels of crude daily. At Toronto the Company operates a lubricating oil blending and grease manufacturing plant; and an oil blending plant at Winnipeg completes its processing facilities.

Distribution is effected through a Coast to Coast network of marine terminal tanks and bulk stations as the map above indicates. These serve McColl's thousands of dealers whose "Red Star and Green T" trademark sign is so well known to Canadian motorists. Through subsidiaries, McColl-Frontenac operates a fleet of lake and ocean

Marine Terminal, Barnet, B.C.

Jasper Park, Alta.





tankers, and a land "fleet" of about 650 railway tank cars to feed the Refineries and distribute the finished petroleum products. McColl-Frontenac has a 20% interest in the crude pipeline between Portland, Me., and Montreal; and owns one-third interest in Trans-Northern Pipeline Company, which pipeline will transport refined products from the Montreal Refinery to terminals at Ottawa, Toronto, and Hamilton with intermediate take-off points.

Edmonton, Alta.



*Loading Lubricating Oil,
Port of Montreal.*



▲ *Near Ottawa, Ont.*



◀ *Norwood, Manitoba.*



The search for Western Oil leads into remote and seemingly barren spots.

Explorations

—WIZARD LAKE AND BONNIE GLEN

Just over a year ago, The Texaco Exploration Company announced its first important exploratory success with the discovery at Wizard Lake, Alta. Since then, this outstanding discovery—which now has sixteen producing wells—has been followed by the news of further success at Bonnie Glen, about six miles south of Wizard Lake.

Both new fields are important additions to Western Canada's oil resources, Wizard Lake being the most notable find of 1951. The coral reef structure, which is the oil producing horizon at Wizard Lake, has over 600 feet of pay section. Quality of oil resembles Leduc-Woodbend oil; averaging over 37° API gravity and low in sulphur content.

Sign marks the site of Wizard Lake Field, Northern Alberta.

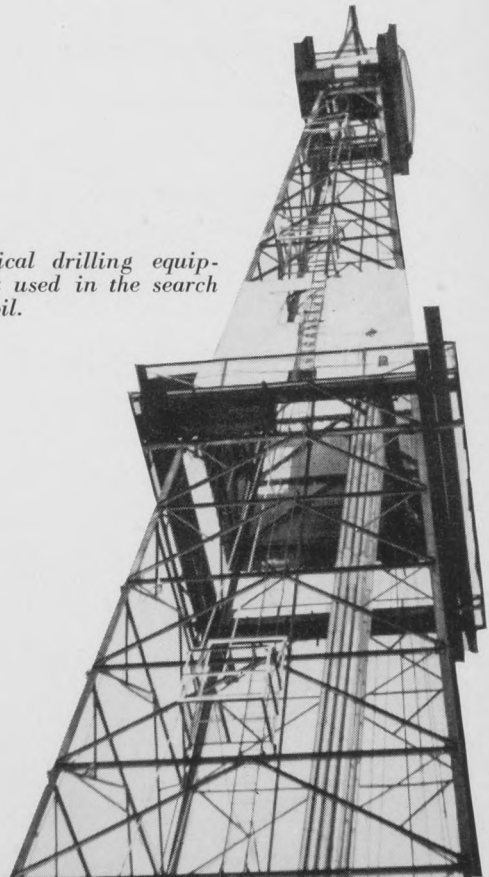


Four wells have been completed to date by Texaco Exploration in the Bonnie Glen field. The oil pay section is approximately 290 feet in thickness and there is a gas cap of approximately 400 feet. The oil produced averages over 43° API gravity with a very low sulphur content. Edmonton Works is already linked to Wizard Lake by a pipe line, built by Texaco Exploration Company, which will be extended to Bonnie Glen.

These outstanding discoveries by the Texaco Exploration Company climax many years of search carried on jointly by McColl-Frontenac and The Texas Company.



Typical drilling equipment used in the search for oil.





Old and new meet in Saudi Arabia. Oil rig in background is typical of country's new industrialization.

Texaco

—AROUND THE WORLD

Fifty years ago, The Texas Company went into business, and for nearly all that time it has had markets outside the North American continent. When Texaco was only three years old, it began to sell in Europe, and only a few years later the red star with the green "T" was known around the world.

Within the past two decades, not only The Texas Company's marketing facilities, but its producing, transportation, and refining activities have spread to cover the globe. Most of these operations outside the United States are done through associated companies.

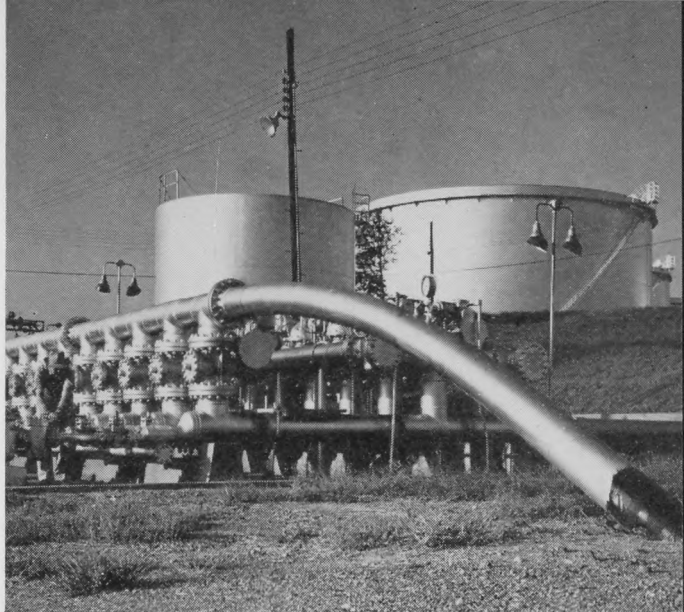
These companies produce oil in South America and in Saudi Arabia, as well as in the United States and Canada. They explore for it in the far corners of the world. Petroleum goes by pipe line nearly 1,000 miles from the Persian Gulf to the Mediterranean. Refineries make Texaco products in Europe, South America, Japan, and the Middle

East. Tankers owned or operated by Texaco or its associates, ply the seven seas. Nearly everywhere in what we know as the free world, where there are automobiles, airplanes, railroads or manufacturing plants, products bearing the red star with the green "T" keep the wheels turning. To paraphrase a well-known saying, "the sun never sets on the Texaco star."

Here in Canada, McColl-Frontenac is associated with Texaco to explore for, produce, refine, transport, and market petroleum and its products. Our Edmonton refinery is the newest unit in a vast global service.

From atop Corcovado (Hunchback) Mountain a towering statue of Christ looks down on Rio de Janeiro, Brazil. ➡

Off Sitra on Bahrien Island in the Persian Gulf, a globe-trotting Texaco tanker lies at anchor. ⬇



Pipe line manifold at Hearne, Texas. Texaco products are distributed to all 48 States.

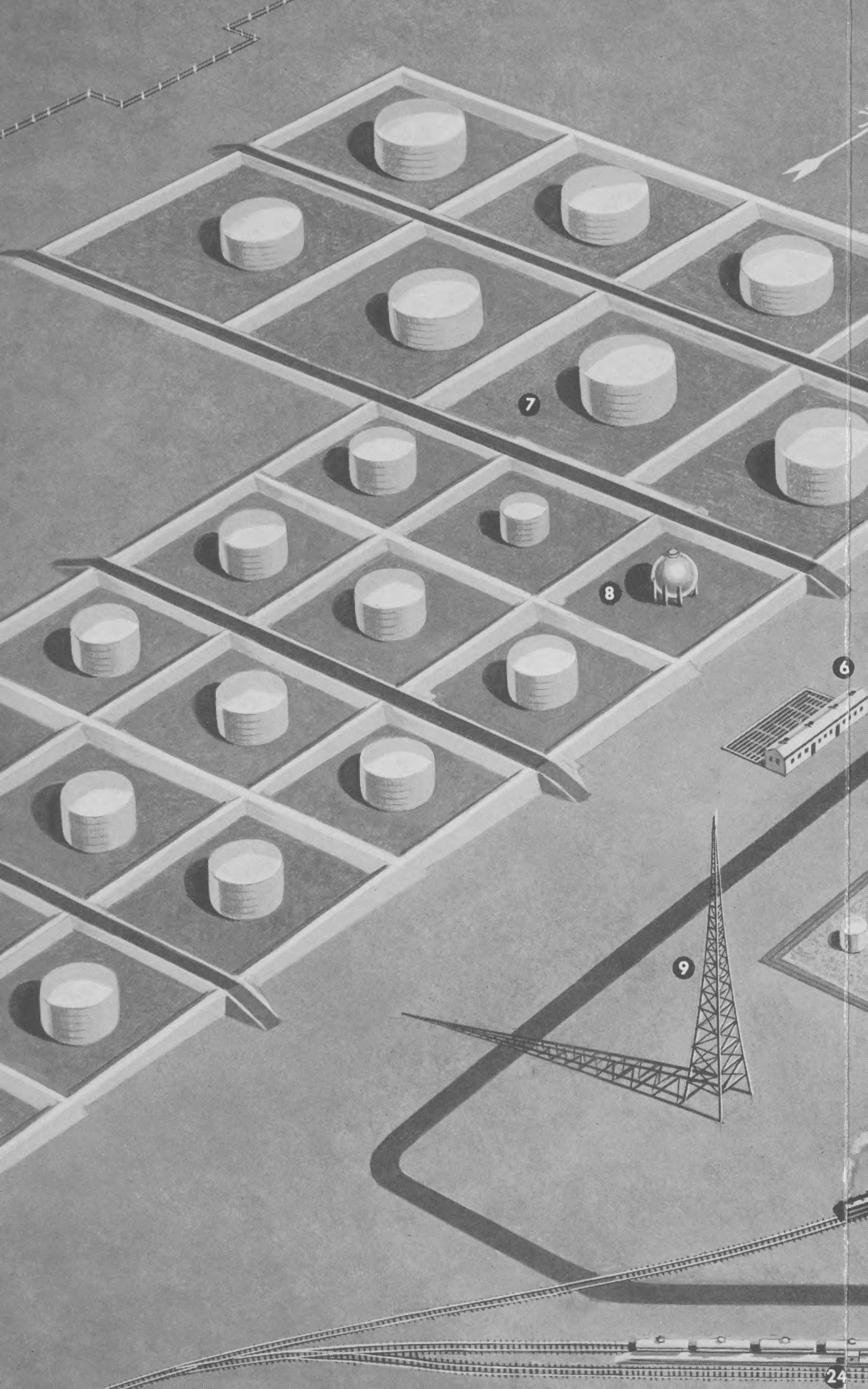




Long sought, now found: a bonanza of liquid gold buried under Alberta grain fields.



McCOLL-FRONTENAC OIL COMPANY
LIMITED

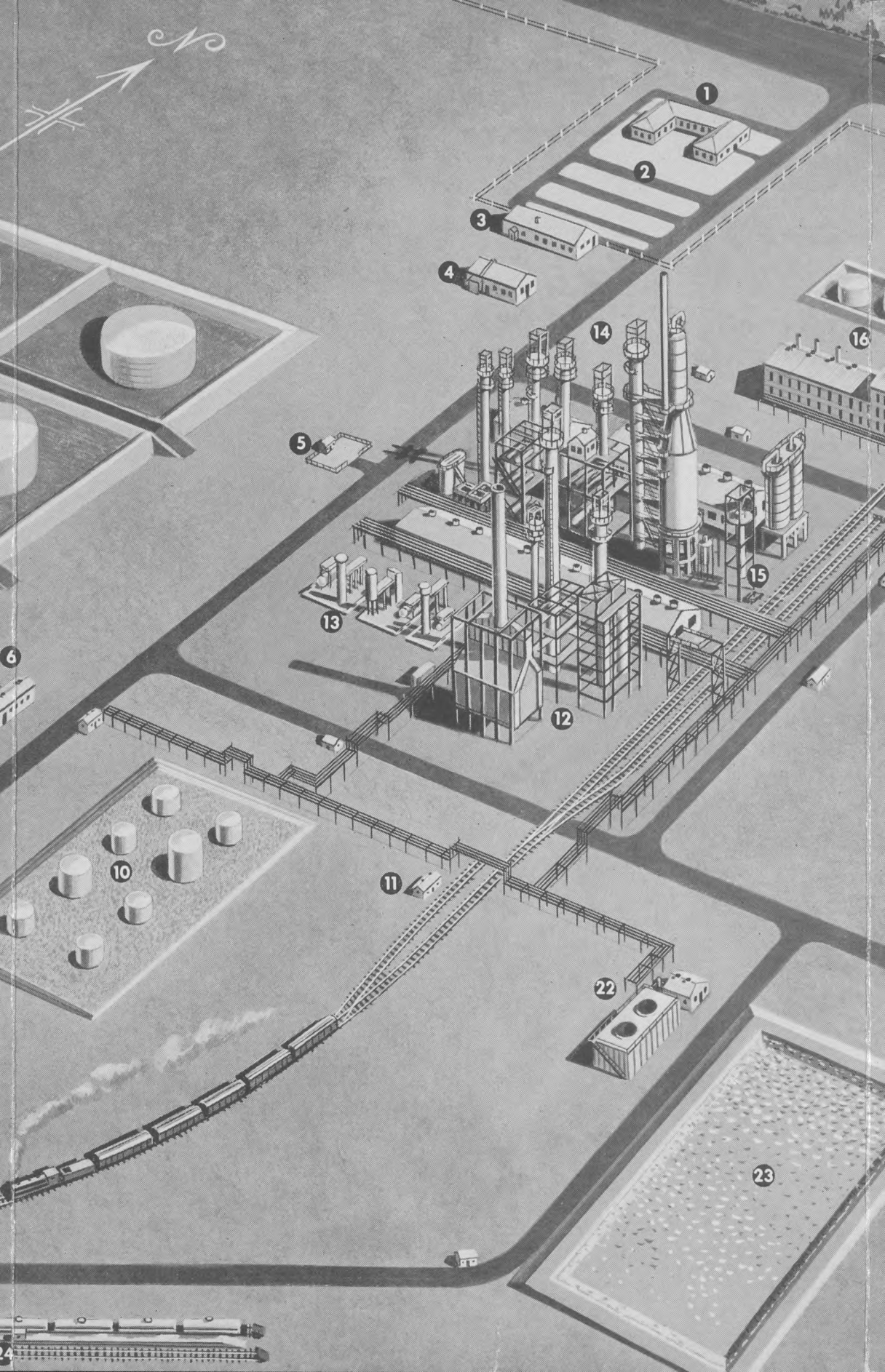


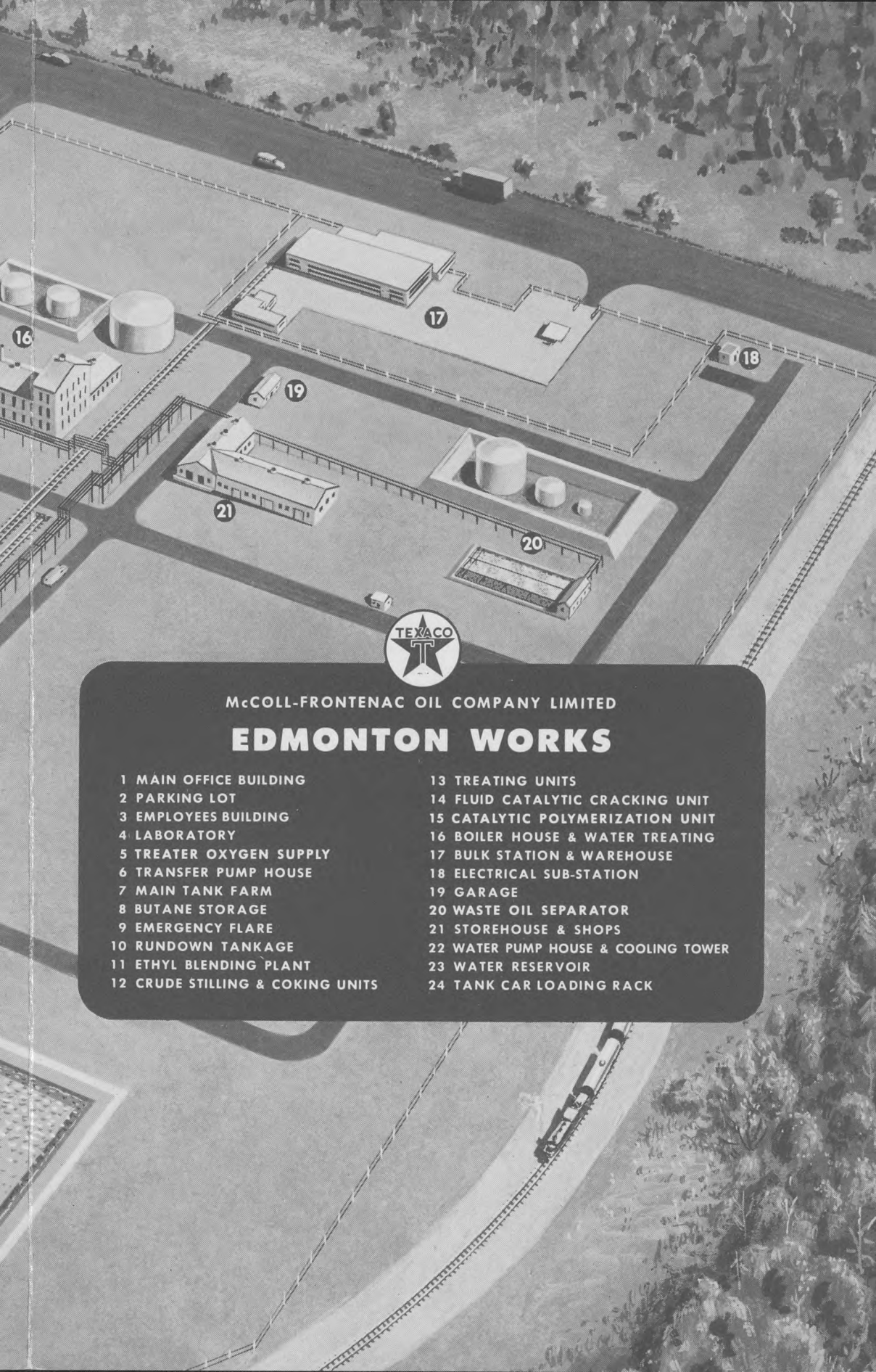
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McCOLL-FRONTENAC OIL COMPANY LIMITED

EDMONTON WORKS

- | | |
|----------------------------------|-------------------------------------|
| 1 MAIN OFFICE BUILDING | 13 TREATING UNITS |
| 2 PARKING LOT | 14 FLUID CATALYTIC CRACKING UNIT |
| 3 EMPLOYEES BUILDING | 15 CATALYTIC POLYMERIZATION UNIT |
| 4 LABORATORY | 16 BOILER HOUSE & WATER TREATING |
| 5 TREATER OXYGEN SUPPLY | 17 BULK STATION & WAREHOUSE |
| 6 TRANSFER PUMP HOUSE | 18 ELECTRICAL SUB-STATION |
| 7 MAIN TANK FARM | 19 GARAGE |
| 8 BUTANE STORAGE | 20 WASTE OIL SEPARATOR |
| 9 EMERGENCY FLARE | 21 STOREHOUSE & SHOPS |
| 10 RUNDOWN TANKAGE | 22 WATER PUMP HOUSE & COOLING TOWER |
| 11 ETHYL BLENDING PLANT | 23 WATER RESERVOIR |
| 12 CRUDE STILLING & COKING UNITS | 24 TANK CAR LOADING RACK |

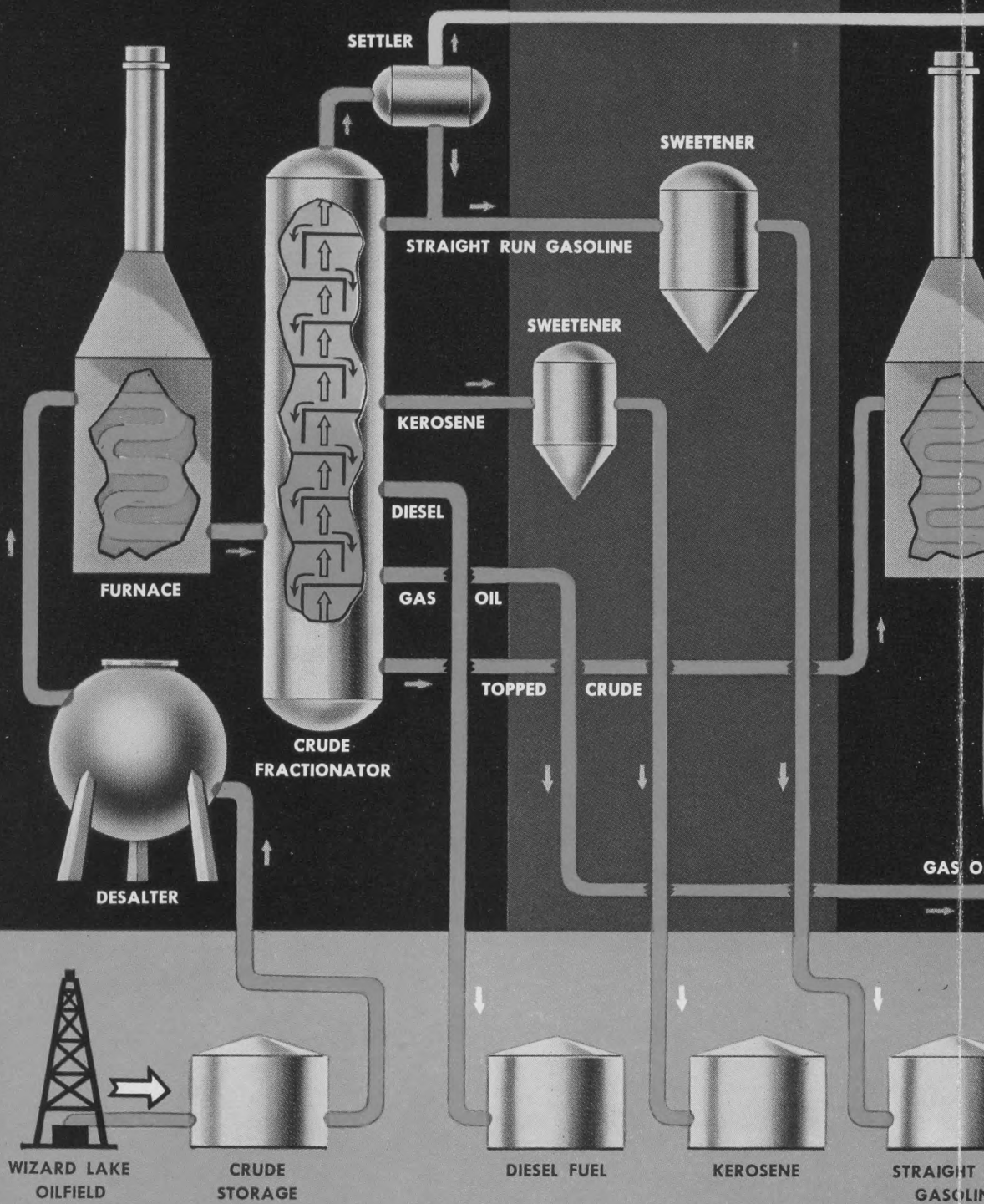


FLOW CHART

CRUDE STILLING

TREATING

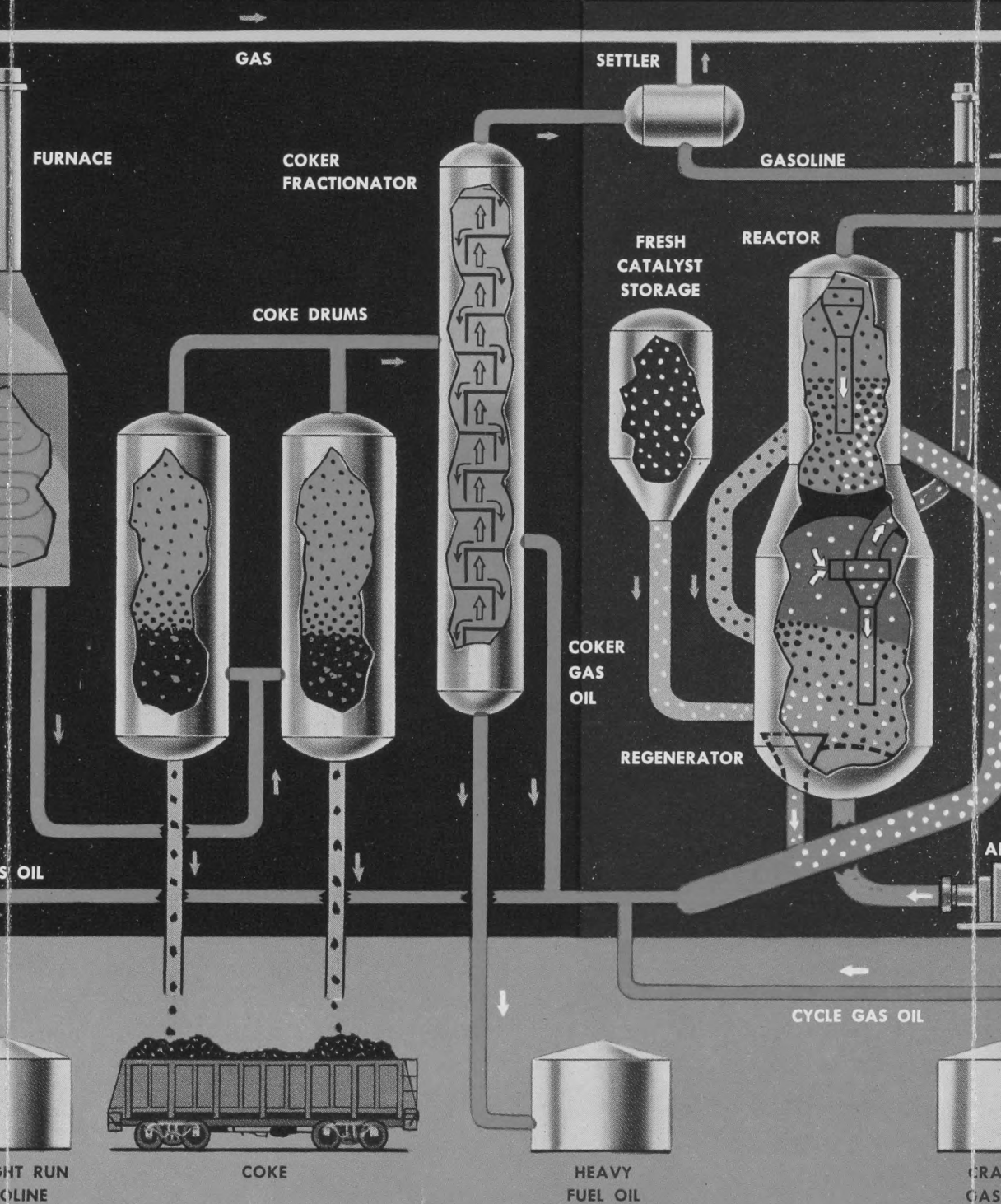
DELIVERY



HART OF EDMONTON

DELAYED COKING

CATALYTIC



POLYMERIZING

